Abstract Submitted
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Ultracold gas of ground-state polar KRb molecules in 2D B. NEYENHUIS, D. WANG, M.H.G. DE MIRANDA, A. CHOTIA, J. YE, D.S. JIN, JILA, National Institute of Standards and Technology and University of Colorado Department of Physics — We report on our ongoing studies of dipolar interactions in ground-state KRb molecules prepared in the quantum regime. At large dipole moment we see a dramatic increase in the inelastic scattering rate due to attractive head-to-tail interactions between molecules [1]. To suppress this inelastic loss we are preparing a gas of polar molecules in a 2D confined geometry provided by a one-dimensional optical lattice. We will explore the effect of the 2D confinement on the lifetime of the trapped molecule gas.

[1] K.-K. Ni, S. Ospelkaus, D. Wang, G. Quemener, B. Neyenhuis, M. H. G. de Miranda, J. L. Bohn, J. Ye, D. S. Jin, Dipolar collisions of polar molecules in the quantum regime. arXiv:1001.2809.

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